

### **Project Title**

A new Joint Nurse-Physiotherapist Clinic reduced lead time and improved resource allocation for Phase II Cardiac Rehabilitation

### **Organisation(s) Involved**

Ng Teng Tong General Hospital, Jurong Community Hospital, National University Healthcare System

### **Project Category**

Care Redesign, Process Improvement, Quality Improvement

### **Keywords**

Care Redesign, Process Improvement, Quality Improvement, Quality Improvement Methodology, Outpatient Care, Post Discharge Care, Care Continuity, Long-Term Care, Heart Disease Patients, Cardiac Rehabilitation, Preventive Interventions, Resource Management, Multidisciplinary Model of Care, Multidisciplinary Clinic, Reduce Lead Time, Resource Allocation, Cost Saving, Cardiology, Nursing, Allied Health, Ng Teng Fong General Hospital, Joint Nurse-Physiotherapist Clinic, Coronary Artery Disease Prevention and Management, Percutaneous Coronary Interventions, Cardiology Specialty Nurse, Root Cause Analysis, Plan-Do-Check-Act

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# A new Joint Nurse-Physiotherapist Clinic reduced lead time and improved resource allocation for Phase II Cardiac Rehabilitation

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## Introduction

- **Cardiac Rehabilitation (CR)** is a multidisciplinary model of care (Figure 1), integrating secondary prevention into the long-term care of patients with heart disease<sup>1</sup>, improving cardiopulmonary capacity and risk reduction in coronary artery disease prevention and management<sup>1</sup>
- CR is divided into Phase I (inpatient) and Phase II (outpatient) in NTFGH.

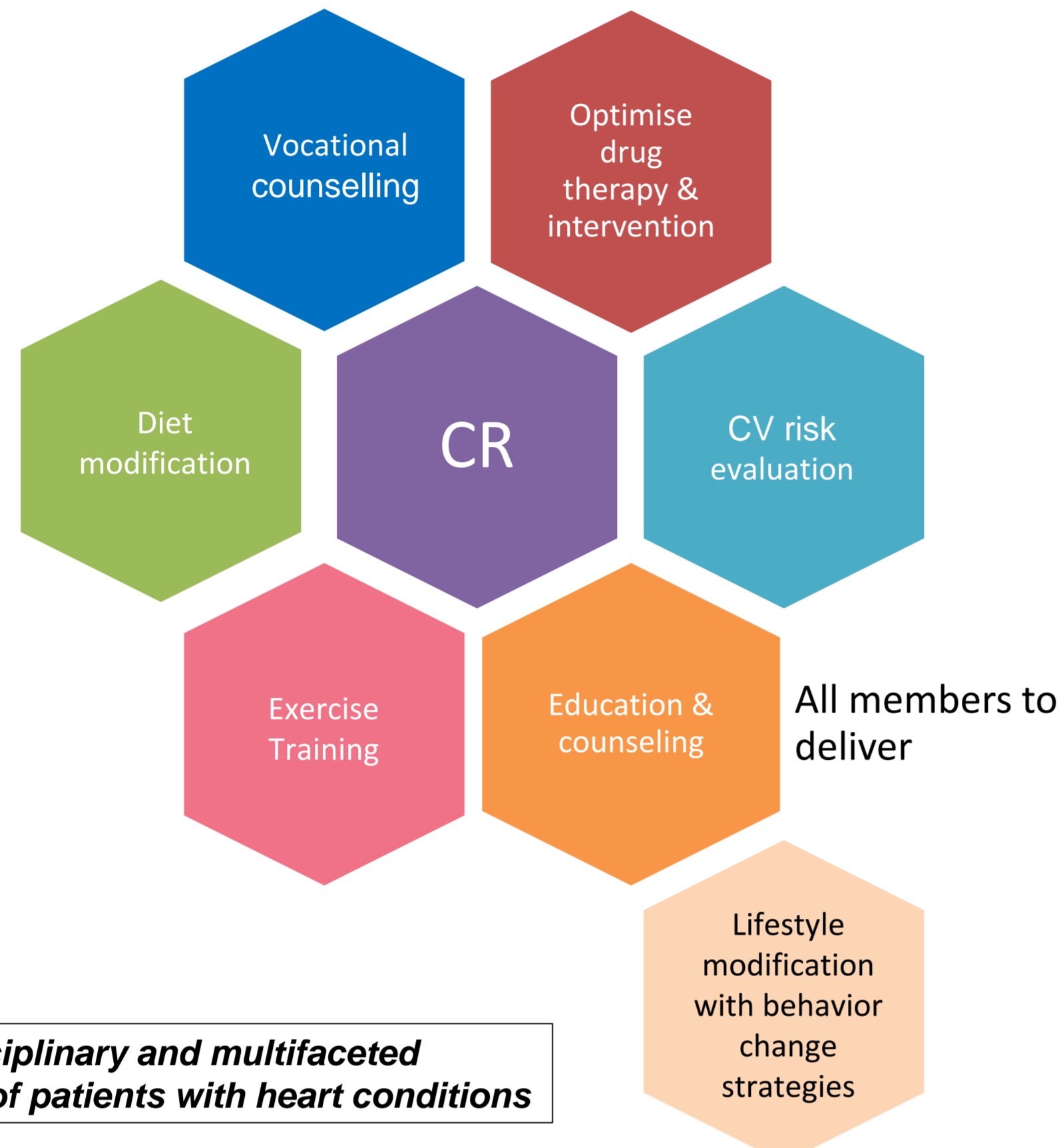


Figure 1. Multidisciplinary and multifaceted approach to care of patients with heart conditions

- Previously prior to Phase II, our CR Multidisciplinary Clinic (MDC) provided a convenient single-day visit of the CR multidisciplinary team (Cardiologist, Physiotherapist, Occupational Therapist, Dietitian and Cardiac Nurse) for assessment of patients with percutaneous coronary interventions (PCI).
- **Problem:** Lead time to Phase II CR increased to 52 days while two allied health services were undersubscribed at 25% utilisation in MDC.
- A paradigm shift from MDC to new models was needed.

## Aim

To reduce lead time to first contact of Phase II CR from 52 days to 14 days and man-hour cost by 50%

## Methods

- Root Cause Analysis (RCA) identified the causes of prolonged lead time and poor resource allocation.
- The Plan-Do-Check-Act (PDCA) tool developed and continuously appraised the new initiative.
- Outcomes were leadtime, costs to departments and patients, attendance rate and uptake of exercise program. These were compared with the MDC at 6-month periods.

## Results

The RCA identified three causes:

1. Fortnightly-frequency of MDC
2. Shortage of cardiologists
3. Varying number of slots among five MDC members within the same day

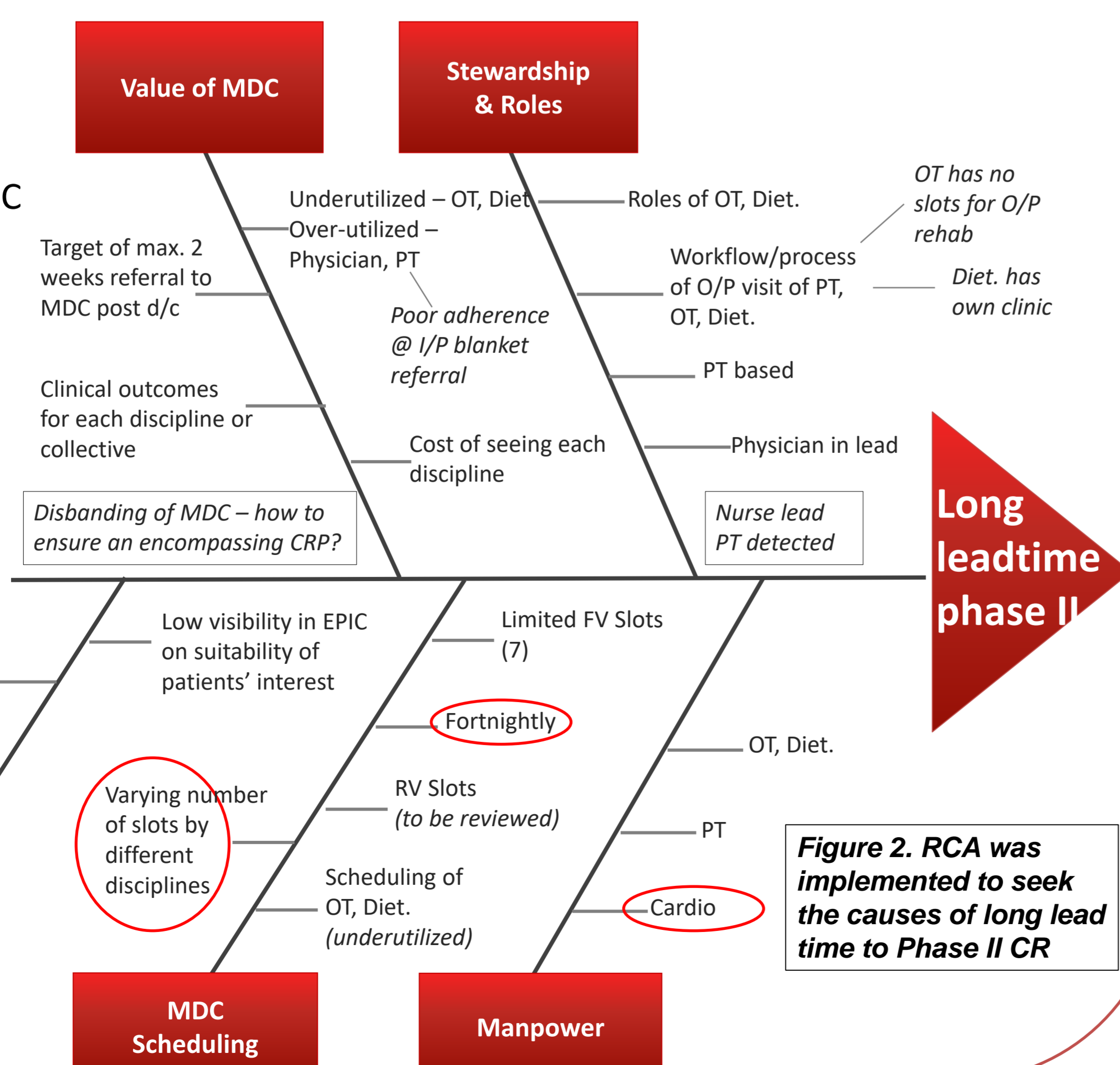


Figure 2. RCA was implemented to seek the causes of long lead time to Phase II CR

## Results

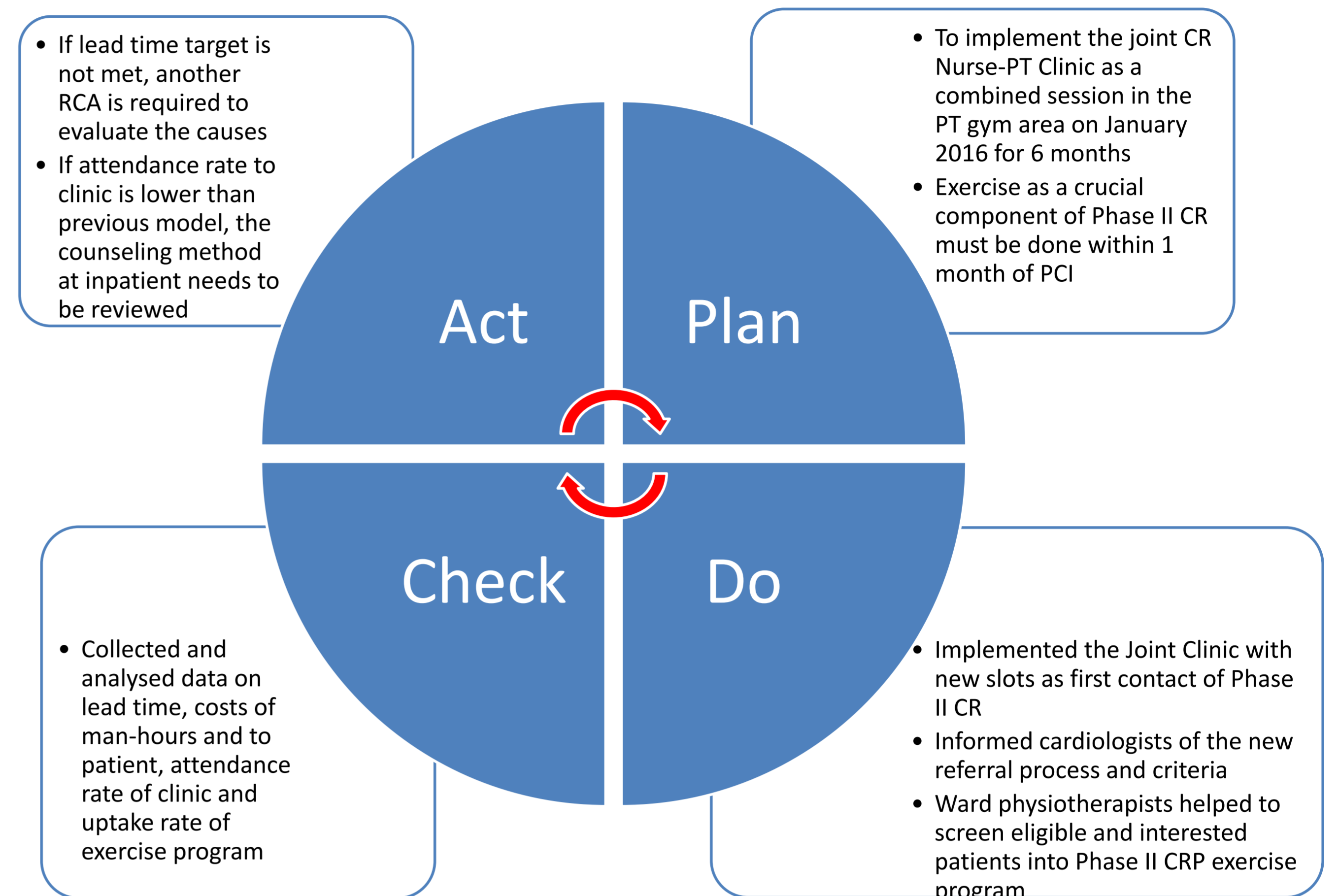


Figure 3. The PDCA shows the steps in developing the new model as an initial assessment visit before Phase II CR exercise program

### New initiative: Joint CR Clinic with PT + Cardiac Specialty Nurse

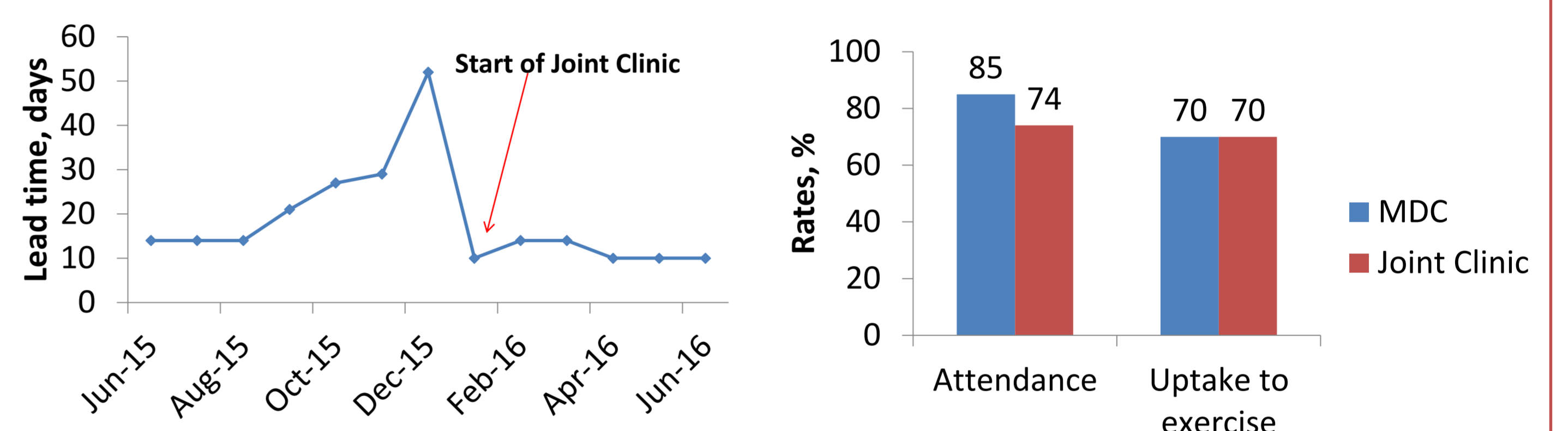


Figure 4. The trend of lead time to Phase II CRP during MDC (before Jan 2016) and through the Joint Clinic

Figure 5. Comparisons of mean attendance and uptake rates between MDC and Joint Clinic

### Resource optimisation:

1. Total number of cases attended: MDC 84 vs. Joint Clinic 140 patients with PCI
2. Total manpower resources saved = \$6800 monthly
3. Cost saved by patient = \$60 per patient
4. The Joint Clinic identified 10% of patients unsuitable for exercise due to ongoing symptoms post-discharge and moved their cardiologist consult earlier.

## Conclusions

- The redesign has improved lead time and resource allocation, yet maintained the Phase II CR exercise participation rate. Our rate is slightly better than reported for other countries<sup>2</sup>.
- The lower attendance to the Joint Clinic than that of MDC suggests that the presence of Cardiologist in MDC may influence patient's motivation to attend.
- A Cardiology Specialty Nurse was essential for symptoms assessment and intervention (eg, medication and/or early Cardio referral) prior to exercise.

## References

1. Sandesara PB, et al. Cardiac Rehabilitation and Risk Reduction. *Journal Of American College of Cardiology* 2015; 65(4): 389-395.
2. Dalal HM, Doherty P, Taylor RS. Cardiac Rehabilitation. *BMJ* 2015; 351:h5000. doi: 10.1136/bmj.h5000 (Pub 29 Sep 2015)

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